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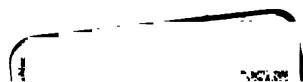
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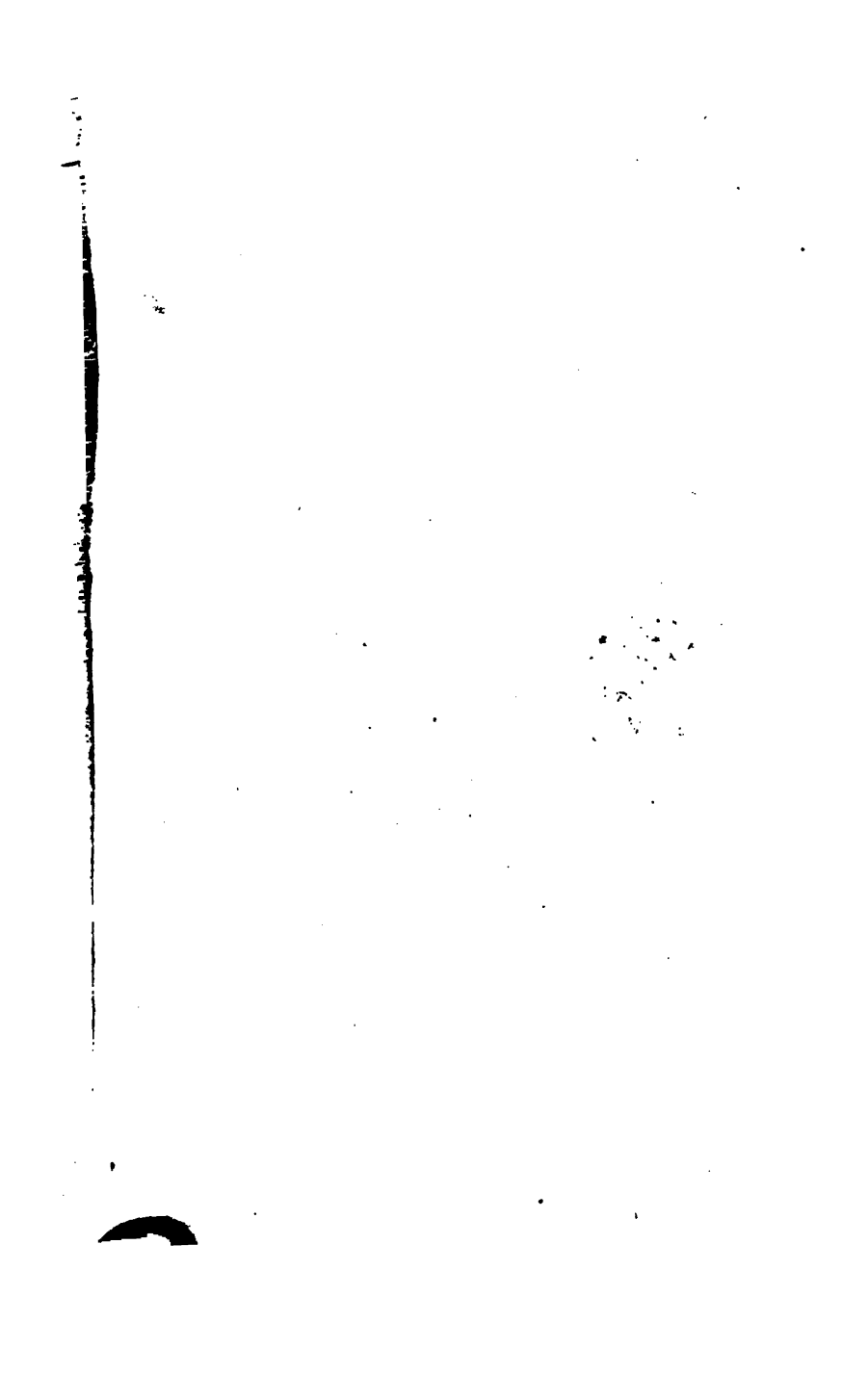
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DENTISTRY:

ITS USE AND ABUSE.





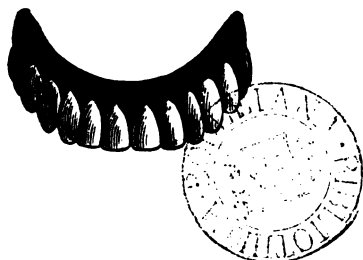
DENTISTRY:

ITS USE AND ABUSE.

BY

G. H. JONES,

DOCTOR OF DENTAL SURGERY, SURGICAL AND
MECHANICAL DENTIST, ETC.



LONDON:
ELLIOT STOCK, 62, PATERNOSTER ROW.

1872.

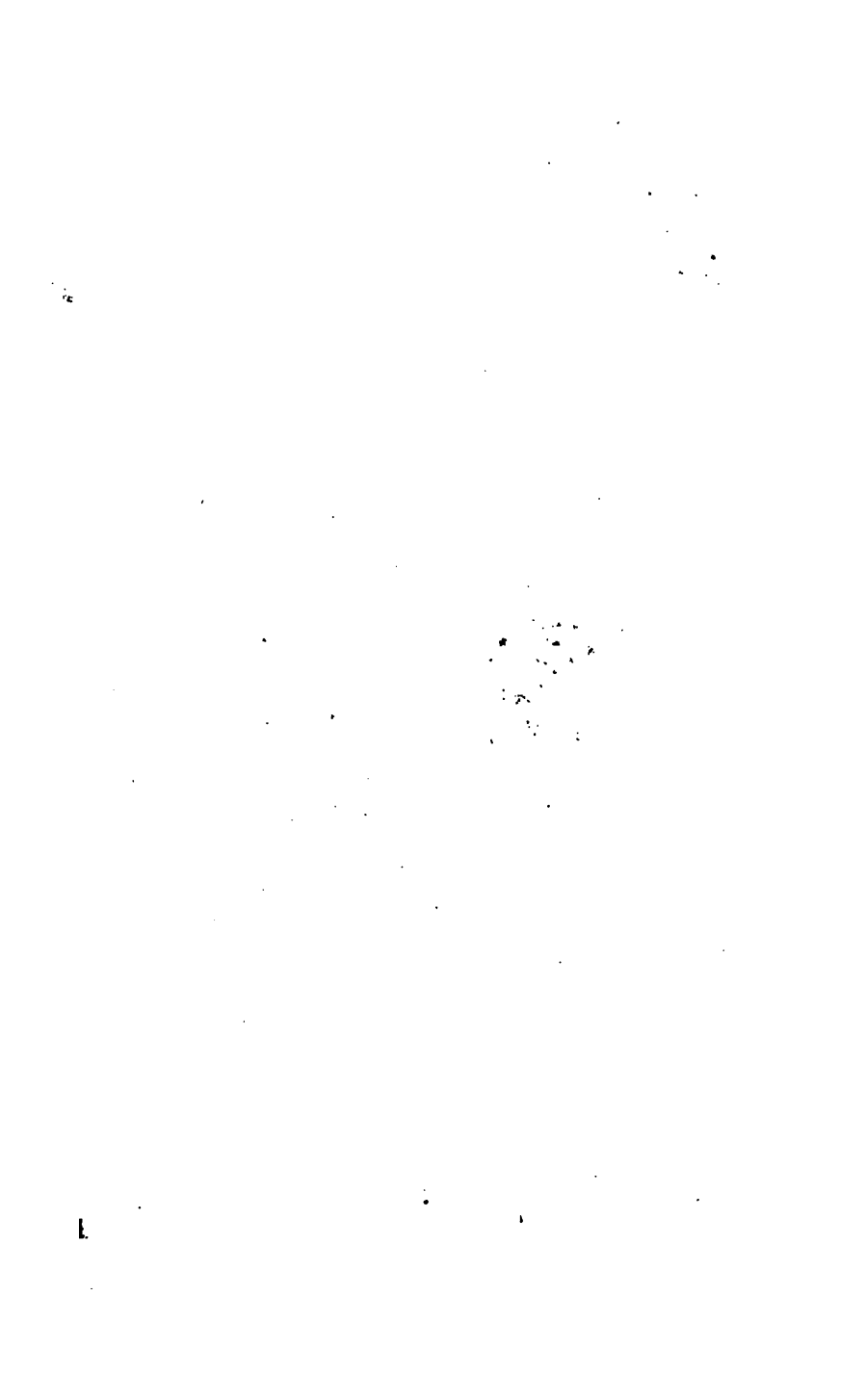
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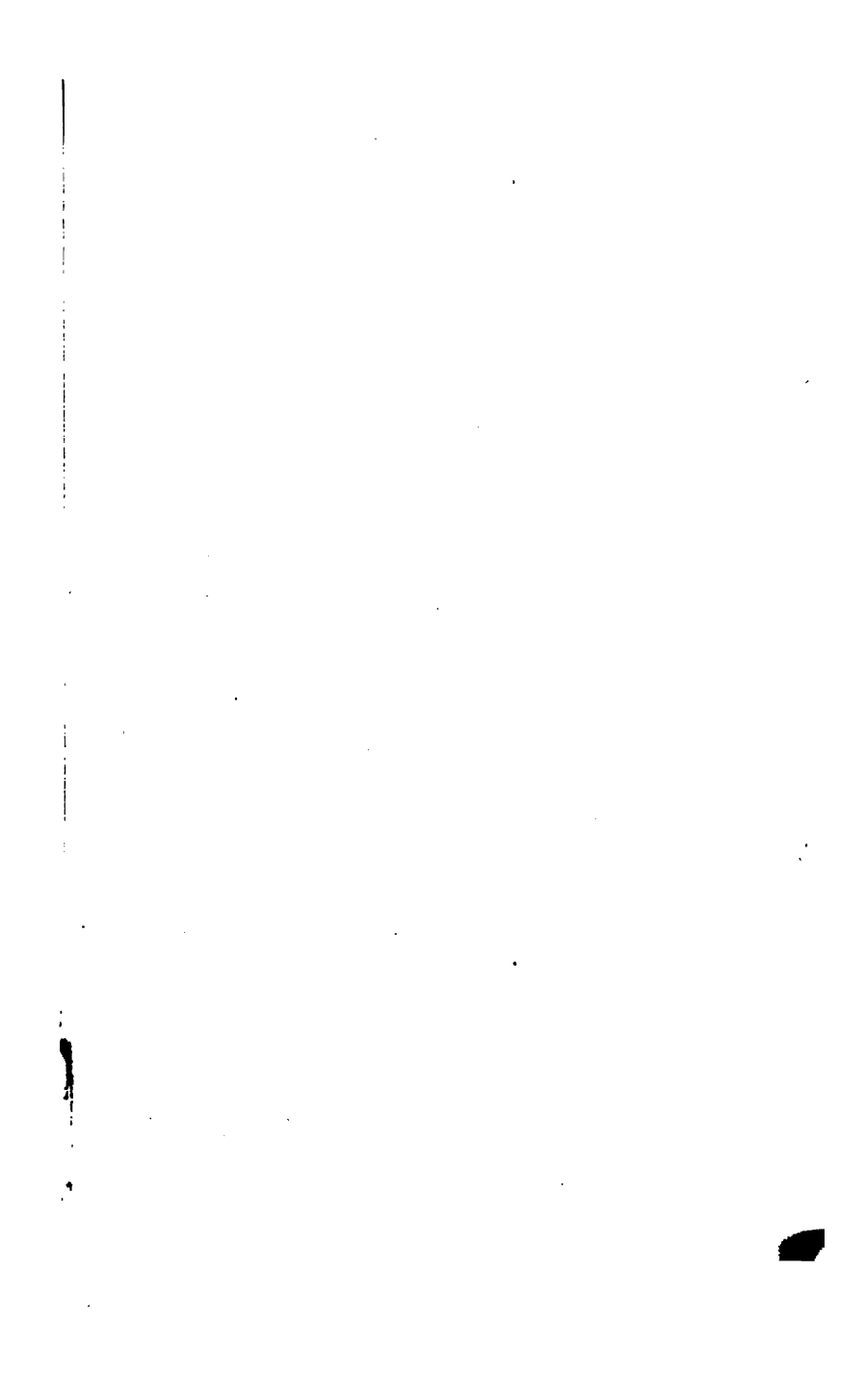
ITS USE AND ABUSE.



other causes evils originating entirely with ourselves. But should we speak to these people about losing molar teeth (grinders for masticating their food), they appear not to understand that they are necessary for their existence, or at least the enjoyment of perfect health.

In conclusion, allow me to say, by way of addenda, that being in constant communication with the leading Scientific Societies of Great Britain, the Continent and America, I am duly advised of every improvement in Surgical and Mechanical Dentistry; and my past conduct in securing for my patients the benefits of recent discoveries may be a guarantee of future efforts in that direction.

57, GREAT RUSSELL STREET,
LONDON, W.C.



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DENTISTRY: ITS USE AND ABUSE.

CHAPTER I.

INTRODUCTORY REMARKS.

THE science of Dentistry has made such rapid progress during the last few years, and its necessity has become so generally admitted, that a work like the present will afford to many information they have desired to gain, and on which they can rely, for it is the result of experience made manifest. It is well to guard the unwary against the plausible representations of unprincipled so-called dentists. Persons are induced to go to these men by the promise of impossibilities held

forth in their flaming announcements, for nothing seems too outrageous for some people to believe.

Such statements are never acted upon, but often cost their dupes a very great amount of discomfort, which is only equalled by the exorbitant charges made for what has invariably proved infamous workmanship, combined with the most inferior and oftentimes impure materials.

Evidences of such cases continually fall under my personal notice; and I cannot but regret (as every qualified dentist must do) that there are such bunglers in the profession, parties who live wholly by their mendacity and impudence.

Every dentist ought to have served an articulated apprenticeship to his profession, attended several courses of dental lectures and hospital work, and passed a theoretical and

practical examination in both Surgical and Mechanical Dentistry. This curriculum would qualify him to hold the Honorarium of Doctor of Dental Surgery or other distinctive title; and thus the public would have a safeguard and guarantee as to the proficiency of the dentist they may consult, and a protection against quacks and tinkers.

There is no doubt that much suffering which arises from the premature decay of the teeth might be avoided, if proper attention were bestowed upon them during the important period of dentition, and if decay were averted when it first makes its appearance, or a competent dentist regularly consulted; for it must be borne in mind that tooth-ache does not always accompany the process of decay, but that it often takes place without the patient being conscious of the fact. Many a tooth would have proved use-

ful to its owner which through neglect has become worthless and obliged to be extracted.

“But 'tis with Beauty's chain
As 'tis with Nature's: sunder it in twain,
Break any link, and you dissolve the whole,
As death disparts the body from the soul.”

“Check the very beginnings of evil,” is a good motto, and deserving of all imitation; for it is the first trifling irregularity that opens the fatal highway for another, and from a bad digestion spring many hydra-headed evils.

CHAPTER II.

IMPORTANCE OF THE TEETH.

IN the nineteenth century it seems almost strange that there are so many persons who require to be impressed with the necessity of preserving the teeth, or of having those replaced which are wanting; for a perfect set of teeth is indispensable to nourishment and health.

It is to be regretted that there are some persons who, either from want of proper consideration of the subject or knowledge, deem the functions of the teeth superfluous; and to those I address the following few words for their careful consideration, in order that they may learn to appreciate the gift of an All-wise Creator.

AS TO NOURISHMENT.

Because the food must be thoroughly masticated to be perfectly distributed throughout the system, therefore it becomes an important consideration to make sure that the first part of the assimilative process (digestion) is properly performed, i.e. insalivation of the food by mastication.

Neglect this, and every part in connection therewith will suffer. That digestion commences in the mouth is a well-known fact, and yet how little is it thought of! This may be better explained by remarking that in the mouth a chemical change takes place of the greater portion of the food we consume; and should there be any lack of power there, that process is transferred to the stomach, and cannot possibly be received as life-elements until that transformation is effected.

Should the stomach have to perform the functions of the mouth, much suffering must be borne, in consequence of the double burden imposed ; this, therefore, should be carefully avoided.

AS TO HEALTH.

Because if the mastication is imperfect the food oppresses the organs of digestion, and if the teeth are decayed they vitiate the normal secretions of the mouth, therefore those who have lost their teeth must suffer from indigestion, and should lose no time in having *Artificial ones* instead, otherwise chronic dyspepsia in all probability will ensue.

AS TO BEAUTY.

Because an imperfect set of teeth not only disfigures the mouth, but also distorts the contour of the face ; and the charm of beauty

is lost by the absence of teeth, "even as pearls in a row."

AS TO VOICE.

Because the tone and articulation are both damaged by the want of a complete set, or by misplaced and imperfect teeth. The power of speech is man's distinguishing and peculiar birthright; a speaker who mumbles his words not only becomes tiresome and ridiculous, but oftentimes unintelligible.

To all, teeth, real or artificial, are necessary; for no one organ of the body can perform its duties independent of another; and should any one organ become overtaxed, the whole framework of the body, living as it does in such wonderful and mysterious sympathy, sooner or later yields its power to weakness, and in due course paralysis of some vital organ takes place.

Therefore the dentist ought to be consulted as regularly as the family physician, and children's teeth should be frequently submitted to his inspection during the very important period of dentition, as it would be a great preventive of future pain, and retards irregularities of the dental arch, as also premature decay.

From whichever point we view or discuss this subject, it will be seen that a really good and perfect set of teeth is an actual necessity.

CHAPTER III.

FORMATION OF THE TEETH.

A TOOTH is composed of two substances: one, called the enamel, consists almost entirely of earthy matter, the proportion being about ninety-nine parts of mineral deposit to one of animal, and is spread over that part which is not covered by the gums. The other substance is dentine, composed of about eighty-eight parts of animal matter to seventy-two of mineral. It consists of the fang and all the body of the tooth situate within the enamel. Where the ossification of a tooth is commencing, bone is deposited from the vessels upon its extreme points. The ossification usually begins in the incisors (front teeth) in spots: these increase,

soon unite, and produce the cutting edge of the tooth. In the molars (grinders) it begins in as many spots as there are grinding points, which in the lower are commonly four, and in the upper five.

The enamel in some teeth has a very defective formation; instead of being a hard white substance, having a smooth polished surface, it is frequently met with of a yellow colour, and having a great many indentations on its face. Each tooth has an inner cavity, commencing with a small opening in the fang, which becomes longer and terminates in the body of the tooth; through this canal each tooth is supplied with nerve and blood vessels, communicating with the chief ganglion or nervous system. The teeth are fixed in sockets, or cells, by a species of articulation called gomphosis, and are attached to the alveolar cavity by a membrane or thin skin

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termed periosteum, which extends over the fangs and lines the sockets. By the presence of the nerve, blood vessels and periosteum, the teeth derive and maintain their vitality.

For example, should a tooth become loosened by a blow, it generally by degrees loses its whiteness and acquires a darker hue; this proceeds from the vessels which enter the tooth being destroyed, and consequently losing a supply of blood.

CHAPTER IV.

FIRST DENTITION.

THE temporary or, as they are sometimes called, the milk teeth, are both smaller and more delicate than the permanent ones. The time of their appearance varies considerably ; sometimes they shew themselves through the gum as early as the fourth month, but more generally the sixth or eighth month, being twenty in number, ten in the upper and ten in the lower maxilla. The two central incisors in front of the lower are those first cut. These are in a week or two succeeded by the two upper centrals ; the two lateral incisors in each maxilla, from the seventh to the eleventh

month; the four anterior molars, or double teeth, then follow, from the twelfth to the eighteenth month; they are succeeded by the canines, from the sixteenth to the twenty-second month; then the four posterior molars, from the nineteenth to the thirty-eighth month.

These furnish the complement of temporary or deciduous teeth. The irritation caused during the period of dentition produces at times great constitutional disturbances; and in such cases, convulsions, pneumonia, infantine aptha, or thrush, is the result. The tooth advancing more rapidly than absorption takes place, a degree of pressure is exerted against the capsules of the tooth and gum; thus the irritation produced is more or less violent, according to the resistance offered to the coming tooth. In all such cases, lancing the gum will save

the child much pain and often life itself;
but even this operation may be prevented
by the timely use of some simple remedy.

CHAPTER V.

DECAY OF TEMPORARY TEETH.

THE “temporary teeth” are very liable to become carious, and usually cause a great deal of pain; sometimes this disposition to decay shews itself very early; the little patients are often dreadfully afflicted, and, by their rest being disturbed, and unable to masticate food with comfort, the health is much impaired. These circumstances render the extraction of decayed teeth in many instances necessary—which the author is able to do painlessly by the use of that valuable and harmless anæsthetic Nitrous Oxide (a full account of which will be found in a future Chapter).

Abscesses of considerable extent may form

about the sockets of these carious teeth and produce considerable mischief; the gums acquire a spongy appearance, discharging a quantity of foetid matter or pus, and sometimes so much injury is done as to occasion death or exfoliation of portions of either maxilla. When this happens, it usually extends so far as to include the alveoli containing the forming permanent teeth, which at times have come away with the diseased temporary ones. Therefore, when a child's teeth have become carious and produce tooth-ache, gum-boils or abscesses, I recommend extraction, as they not only materially injure the health, but also are liable to prevent the proper formation of the permanent set of teeth.

CHAPTER VI.

SECOND DENTITION.

FROM six to seven years of age, the child's mouth should be inspected by a dentist, as the permanent teeth then begin to make their appearance; the jaws increase in size, as larger and stronger organs of mastication become necessary. Nature generally effects the removal of the primary teeth by the absorption of their fangs; the crowns, having no hold, fall out or require to be extracted.

The permanent teeth are thirty-two in number, sixteen in each set, and are much stronger, larger and more defined, than the temporary ones. Second dentition generally commences about the seventh year, and proceeds in the following order :

First Molars.....	7 years.
Central Incisors	8 „
Lateral Incisors	9 „
First Bicuspid.....	10 „
Second Bicuspid.....	11 „
Canines	12 „
Second Molars.....	13 „
Third Molars (or wisdom teeth)	20 to 30.

The teeth are arranged in the form of a semicircle; the front ones are called incisors, of which there are two central and two lateral; they are so called because they are sharp for cutting; the ones next on each side, both in upper and lower, are called cuspidati, canines, or dog's teeth, from their resemblance to the shape of dog's teeth. It is thought that these teeth, which are situated immediately below the eye, are connected with the optic nerve. This is fallacious, and a very popular error. The ones next are called bicuspid, because they are double-pointed, being intermediate between

the double teeth and canines ; and all the others are called molars, or grinding teeth.

Generally double teeth in the upper jaw have three, and in the lower two, roots. The teeth in the upper ought naturally, if well and efficiently placed, to overlap those of the under, and to come simultaneously in contact in closing the mouth with the opposing ones, so as to secure a level grinding surface.

As a great deal of unnecessary cruelty is often practised on children by ignorant practitioners, and a great deal of mischief done by the too frequent useless extraction of temporary teeth under the idea of preventing irregularity, I will therefore explain in the next Chapter the principal causes of it, in order that parents may know *when* it is necessary to seek the assistance of a dentist.

CHAPTER VII.

IRREGULARITY OF THE TEETH.

IRREGULARITY of dentition arises from various causes; the most frequent of these is the want of simultaneous action between the *increase* of the permanent teeth and the *decrease* of the temporary ones by the absorption of their fangs. It sometimes happens that not so much of the fang of a temporary tooth is absorbed as to permit of its removal by the efforts of the child before the permanent tooth is ready to pass through, on which account the new tooth takes an improper direction, and very often comes through on the inside; and I have frequently observed, upon the removal of the shedding teeth to make room for the permanent ones, that no

absorption of the fangs of the temporary teeth had taken place. Irregularity of the permanent teeth is also occasioned by their being too large for the space occupied by the temporary ones, the dental arch not being sufficiently extended to permit of a regular position of the new teeth. In this case, irregularity is considerable, and occasions great deformity in the appearance of the mouth.

Pressure and resistance by the nearest temporary teeth frequently turn the permanent ones out of their right direction. Therefore the change of small teeth for larger points out the necessity of giving some proper assistance to nature in this important process, viz., that of throwing out the temporary teeth before the permanent appear. If this be done at the right time, the teeth will always take a regular position, and

every deformity arising from irregularity be prevented.



FIG. 1.

Fig. 1 represents a perfect dental arch at the age of about twenty.

During the progress of the second dentition an opportunity presents itself for effecting this desirable object; but everything depends upon a correct knowledge of the time when a tooth requires to be extracted; also of the particular tooth; for often more

injury is occasioned by the removal of a tooth too early than if left too long, because a new tooth which has *too* much room long before it is required, will sometimes take a position more difficult to alter than a slight irregularity occasioned by an obstruction of a short duration. If an improper tooth is extracted, irreparable mischief will ensue, as in cases where inexperienced practitioners extract young permanent teeth instead of removing the obstructing temporary ones. If the teeth were regularly attended to and examined by a competent dentist, no me-



FIG. 2.

chanical contrivances would be required to ensure a good and perfect set.

Fig. 2 represents a case of irregularity in the malposition of an upper front tooth which I have recently treated with success, and which was entirely caused by neglect during the very important period of second dentition.

CHAPTER VIII.

CARIES.

CARIES, or, as it is commonly called, decay, is a disease which the teeth are most frequently affected with. The enamel, by becoming opaque, exhibits the presence of this disease; and when decay has advanced so far as to destroy the texture of part of the bone of the tooth, the enamel loses its support, then breaks away, and a cavity is discovered in the tooth. It is by no means an uncommon circumstance for persons (who do not have their teeth regularly examined) to discover unexpectedly cavities in several teeth which they had supposed to be perfectly sound; for, as a rule, people seldom trouble themselves about their teeth until their teeth

trouble them, under the idea that they are all right so long as they do not pain. Their destruction, however, begins long before any pain is felt; for it is only when the disease reaches the nerve of the tooth that it commences to ache.

Caries is chiefly caused by some of the following circumstances, which may be briefly enumerated: Firstly, neglect of cleansing the teeth at least once a day—consequently an accumulation of tartar and foetid matter is allowed to remain round the teeth, which both saps and corrodes their vital energy, and thereby causes them to moulder away. Secondly, the immoderate use of mercury and acid medicines. Thirdly, irregularities of diet; drinking very hot or very cold fluids; the sudden transition from heat to cold, or *vice versa*, produces cracks in the enamel, which, although imperceptible to the naked

eye, are plainly visible under the microscope. Fourthly, hereditary predisposition. It often happens that this tendency exists in either the whole or the greater part of a family where one or both of the parents have been similarly affected, and this is true to so great an extent that the same tooth, and even the same part of the tooth, becomes diseased in several individuals in the same family. Fifthly, picking the teeth with pins, &c., biting cotton, cracking nuts, are sources from which caries arise. Sixthly, predisposing causes, under which may be classed defective formation, an imperfect deposit of enamel, or dentine irregularity either in shape or position.

Therefore it will be seen that early attention should be paid to caries, as its progress is very rapid as a rule; and any one who with indifference permits disease to gain on

one tooth after another, places very little value upon the teeth, which are the chief adjuncts to health and beauty. Those who often, to free themselves from pain, get carious teeth extracted (which ought not to be permitted until all methods to preserve them have failed), will ere long sorrowfully find no teeth left in the mouth, and they themselves no longer able to masticate, enjoy conversation or good health.

The following Chapter gives a short sketch of the proper treatment of caries; but it may here be stated that the teeth should be regularly brushed, morning and evening, with a tolerably soft brush, and in such a manner as to remove all deposits from the surface and between the interstices of the teeth, and to avoid as much as possible irritating the gums. A very hard brush causes them to bleed, and often does more harm

than good. The use of a good dentifrice is also indispensable. Either of the following may be used with great advantage:

Take of onis-root, powdered	1 oz.
Precipitated chalk.....	2 oz.

Mix.

Take of finely-powdered charcoal	2 oz.
Camphorated chalk	1 oz.

Mix.

CHAPTER IX.

TREATMENT OF CARIES.

WHEN the first indication of decay is visible on the enamel, the diseased part should be removed, and the cavity filled with a stopping of gold or cement, whichever is most suitable.

This important means of preserving teeth that already bear evidences of decay upon their surface, is not nearly so much appreciated as it should be. It is, however, becoming better understood and more generally adopted than formerly. If some individuals calling themselves dentists, who are no dentists, but sorry bunglers, whose miserable performances have come under the notice of the writer, had not done great injury to the

character of this valuable branch of dental surgery by their stupid meddling, the author would have permitted the subject to pass without comment. Let the public thoroughly understand the matter : stopping a tooth does not merely consist in drying out the cavity, and then inserting a leaden, tin, gutta-percha or other trashy stopping.

This is simply a burlesque of the art, and cannot answer any useful purpose.

To perfectly stop and thereby preserve a tooth, every portion of the decay should be removed, and the cavity, by the aid of proper excavating instruments, be formed for the secure retention of the plug ; but before this is done, the tooth should undergo a thorough and searching diagnosis. If the nerve cavity is penetrated, the condition of the nerve should be considered, and means for its removal or healthy preservation adopted.

This cannot be done except by a qualified dentist, who charges in proportion to the time and labour expended in the operation.

To secure all the advantages of stopping, it ought to be undertaken while the decay is in its incipient or early stage, before it has penetrated as far as the sensitive portion; a tooth should not be stopped whilst in a state of pain.

Those who wish to preserve their teeth should visit the dentist periodically.

CHAPTER X.

TOOTH-ACHE.

THE causes of the above complaint are almost as numerous as the varieties of character it exhibits; and so variable is the character of the sensation, that any description would fail to convey to one who has never experienced tooth-ache a correct idea of its nature.

Tooth-ache is sometimes caused by catarrh, by violence, or exposure to cold. One cause is irritation of the nerves at some remote point of their course, when although the actual seat of mischief may be more or less distant, yet by means of a sympathetic action a painful sensation is conveyed to the teeth, and often produces neuralgia. A more com-

mon cause is inflammation of the lining membranes of the root and socket of the tooth, induced either by violent contact with some hard substance, or, as is very frequently the case, by cold. When these membranes become the seat of inflammation, the pain is seldom confined to one tooth alone, but is general and undecided in its character; the tooth or teeth affected seem suddenly to have increased in size, for in closing the mouth they appear to come in contact with those of the opposite jaw sooner than the others. This, in fact, is the case, for the swelling of the two lining membranes attendant on their inflammation is sufficient to raise the teeth in their sockets and cause them to project more than usual.

Many persons suffering from this kind of tooth-ache, and falling into ignorant hands, would be deprived of sound and useful teeth;

whilst if a proper course of treatment had been adopted, the symptoms complained of would have been no doubt subdued and the teeth preserved. When inflammation exists in a tooth, the pain, which is at first only of a slight gnawing sensation, after a while assumes a throbbing character, and if not promptly arrested, it increases in severity and continues until suppuration of the lining membrane and pulp takes place.

Therefore, as soon as tooth-ache sets in, the dentist ought to be consulted, in order that proper measures may be adopted to allay the pain and to preserve the tooth, by arresting the further progress of decay, and thus render the tooth useful for many years, if not for life, to its owner. But there are some cases of tooth-ache which necessitate extraction. This can be done painlessly. For confirmation of this statement, I refer my

readers to the following laughable extract which appeared in "Old Merry's Monthly Memoranda of Merry and Wise," a monthly magazine, May, 1871. It commences thus :

"Do you know what tooth-ache is? Of course you do ; everybody does, and so do I. Not long ago I was a martyr to it. Day and night it plagued me sorely. When I sat down to prepare a paper or revise a proof for "Merry and Wise," I could think of nothing but camphorated chloroform and cotton wool or cloves, or something to take away that distressing pain. At last I had it stopped, and of course that made it a great deal worse ; and so I resolved to have it out. And how ? Well, under the influence of laughing gas (nitrous oxide). Let me tell you the whole process. When I arrived at Dr. Jones's, in Great Russell Street, I went into the surgery, where the dreadful arm-chair was drawn up opposite the window, and there I seated myself. Beside me was a kind of stove in which the gas was kept. A tube from this stove was handed to me, having at the end of it a mask to fit closely over the face. 'Now,' said the operator, 'take off your spectacles,

put this over your face, and draw in your breath freely, just by way of practice. And then when you understand the process I will give you a little of this very excellent champagne' (meaning the laughing gas). So I learnt my lesson, and then, after having my mouth propped open with a cork, I took a deep draught of the laughing gas. The feeling for the moment was something between the rushing into a tunnel in an express train, and the taking a header from a good height into the sea. By no means an unpleasant sensation, however. And then for the space of about twenty seconds I was 'nowhere.' But at the expiration of that time I heard a bang, and then a voice called out: 'Now, Sir, wake up and rinse your mouth with a little water.' And then I stood before the window, perfectly calm, perfectly comfortable, and without the least idea that my tooth had gone, until my tongue found its way to the vacant place. No shock to the nerves, no painful recollections of an awful wrench, no uncomfortable after effects of any kind; on the contrary, a pleasant sensation of having had a glass of champagne, and a tendency for an hour after to sing snatches of 'Rule Britannia.'

"I thought this might 'meet the eye' of some poor sufferer; and this must be my excuse for detailing so personal a matter. But isn't it a wonderful invention, the use of the laughing gas? I shall never again, if I can help it, have a tooth extracted except under its influence."

CHAPTER XI.

EXTRACTION OF THE TEETH.

THE competent dentist endeavours to preserve and not destroy, for he is fully aware of the importance of never extracting a tooth until all efforts to save it have been rendered futile. However, there are cases when it is necessary to perform the operation of extraction, when it would be useless and hazardous to attempt to fill the cavity so as to retain its use. It is then far better to extract the decayed and aching tooth at once. But when teeth are but slightly decayed they should not be extracted; for it should always be borne in mind that a break in the dental arch, consequent upon the loss of a tooth, not only weakens the whole of the

remaining teeth, but by the uniform lateral pressure being removed, the teeth become separated, and present an unsightly and irregular appearance; and having lost that lateral support, the teeth not unfrequently become loose and require extraction; but this could always be prevented by having an artificial one fitted in lieu of the lost tooth.

Many persons endure the tortures of tooth-ache for weeks, and even months, rather than undergo the operation; and indeed when the frequent accidents occurring in its performance by awkward and unskilled individuals are considered, it is not surprising that it should be approached with apprehension.

But when performed by a skilful hand, and with a suitable instrument, the operation is always safe, and in a large majority of cases may be effected with ease without the use of anæsthetics.

But there are cases (as when a patient suffers from extreme nervousness) which utterly preclude the possibility of extraction under the ordinary method, however skilfully attempted. To meet such contingencies, the most expert and scientific members of the medical and dental profession have adopted various plans. Some have used chloroform; but that being capricious and sometimes fatal in its effects, has been generally abandoned. After this, ether, administered in the form of spray, was introduced; but this, though harmless, was found even less effectual than the former, and could only be used to the front teeth with any degree of success. Another discovery, however, has now been made which meets all cases. It possesses all the merits of chloroform and ether, without any of their demerits. This is called Nitrous Oxide Gas, and can be administered to the most weakly

or nervous person with the most delightful and satisfactory results.*

The following extract is taken from a leading article in a valuable journal, and may interest my readers, shewing the gradual investigation and discovery of pain destroyers :

“No pitying power, no dove-eyed angel, no heaven-sent teacher or deliverer, taught humanity the happy secret that in a simple compound of carbon, hydrogen and chlorine, lays its practical emancipation from the worst tyranny of pain. Centuries, ages, æons, perhaps, had passed, witnessing nameless anguish ; and the long delay is all the more striking when we bear in mind how generation after generation of scientific men in all countries had longed and striven to find some alleviating agent. Sir James Simpson gives a brief history of ancient anæsthetical experiments. Chinese physicians knew, 1500 years ago, of a preparation of hemp called ‘Mayo’ which annulled sensation.

* See next Chapter on this valuable anæsthetic.

The prophet Amos, 700 years B.C., refers to the 'wine of the condemned,' that medicated hyssop which is thought to have been lifted upon the sponge to our Lord upon the cross. Herodotus alludes to some such usage among the Scythians. Homer pictures Helen pouring into the wine-cup at her husband's court a medicine 'which caused oblivion of all sufferings.' Claude Lebrun, of Rochette, says that some of those adjudged to the rack had a certain medicinal soap which annihilated pain. Juliet's portion was evidently of an anæsthetic character; and Boccaccio, in the 'Decameron,' seems to know of a distillation which brought insensibility. But these were mere experiments of the learned, or vain beliefs of the superstitious. The daily mass of the world's vast physical woe went on unassuaged, unconquered, except by the dubious help of narcotics, till Humphry Davy's time. He first discovered the remarkable properties of nitrous oxide; yet sufficient attention was not paid to him. Dr. Hickman, in 1828, suggested carbonic acid for the same purpose. Faraday and Godman, three years later, followed with researches into the action of sulphuric ether; but the grand deliverance of man-

kind from the power of pain happened at last by an accident. At a public meeting on Nitrous Oxide in Hartford, an American experimentalist, under the influence of nitrous oxide, underwent an operation of a painful kind without experiencing any pain. Dr. Horace Wells, an American dentist (lately deceased), observing this, took the gas himself next day, and had a tooth extracted without suffering. That tooth-ache of the Connecticut doctor was truly historical. It led to various experiments, ending in the use of nitrous oxide.”*

* The author was one of the first to adopt and introduce nitrous oxide into this country for the painless extraction of teeth, and has made some not insignificant inventions for the safe administration of the same.

CHAPTER XII.

NITROUS OXIDE.

THE discovery of nitrous oxide belongs to Priestley, a celebrated chemist; and dates from 1776. This gas was supposed to be irrespirable, until Sir Humphry Davy, in 1800, proved to the contrary, and wrote a valuable work, "Researches on Nitrous Oxide." There is but little doubt that nitrous oxide is well deserving of the title given to it by the poets, viz., the gas of Paradise. This gas is the result of the decomposition of nitrate of ammonia by heat. It is colourless and transparent; the smell is peculiar, but agreeable; its taste is sweet. The specific gravity is nearly that of common air; a lighted taper, phosphorous sulphur

and charcoal, burn vividly in nitrous oxide gas, with almost as much energy as in pure oxygen. It is breathed without difficulty; no repulsion or nervous sensibility is met with that is not instantly overcome by more agreeable feelings. The state of insensibility to pain continues for about the space of one minute—a period practically sufficient to perform most operations connected with dental surgery. As there is no inconvenience or evil tendency connected with the administration of the gas, it can be repeated as often as necessary, provided due care and proper attention is given by the administrator.

When the gas is pure, such as the author uses, it may be given without fear to the most delicate of subjects, or even infants, without the slightest degree of discomfort; and the effect of the gas passes off in about one minute. The time occupied from the

commencement or employment of the gas, and the complete restoration of the patient, generally occupies from about sixty to seventy seconds.

In a brief yet valuable extract from the "British Journal of Dental Science," Vol. XI. No. 142, are the following remarks on "Anæsthesia in Dentistry by Nitrous Oxide:"

"A series of very interesting demonstrations have been given at the Dental Hospital of London, in the course of which painless dental operations have been performed on patients anæsthetized by nitrous oxide gas. The demonstrations at the Dental Hospital have convinced the members of the Dental profession that in nitrous oxide gas we have an anæsthetic agent which is undoubtedly possessed of very remarkable and valuable properties; in a considerable number of cases, unconsciousness was induced in less than three quarters of a minute; and what is most remarkable about the effects of this agent, is that consciousness returns almost instantly after the extraction is per-

formed ; that there is no headache, sickness, prostration, or other of the considerable and serious drawbacks which make the administration of chloroform always a far more tedious and troublesome process than the extraction, and which frequently involves some distress to the patient for hours after the inhalation. In many of these cases, the whole proceeding of inhalation, extraction and recovery, occupied less than two minutes ; and twelve or fifteen extractions were performed in succession within a very short time. Several very intelligent persons, members of the Dental and Medical professions, voluntarily submitted to the operation, taking advantage of the opportunity. Within three minutes of the time that they were standing by the chair expressing that wish, they were again standing there detailing their sensations, having meantime been reduced to complete unconsciousness, and the tooth having been extracted."

In some cases it is better only partially to anæsthize the patient ; little pain, if any, is felt, and the tooth extracted without inconvenience.

CHAPTER XIII.

SCURVY ON THE GUMS, ABSCESS, ETC.

THERE is not a disease which the mouth is more liable to than scurvy on the gums. It has been remarked by old writers on Dentistry to be most destructive to the healthy action of the gums; in fact, IT IS THE COMMON CAUSE OF THE LOSS OF TEETH. In its first appearance, the gums become tender, accompanied with pain, redness and swelling, the sure precursors of inflammation. This inflammatory action continues, and the gums are observed to recede from the sockets or necks of the teeth. This necrosis or wasting away continues, until the teeth become loose, drop out, or are so unbearable, that eventually the patient is obliged to have

them removed. In this manner tooth by tooth is lost, until the entire set, SOUND THOUGH THEY BE, disappear.

It cannot be too strongly impressed upon all persons, that as soon as the smallest symptom of scurvy is perceived, active measures should be taken for its removal, and the immediate services of a dentist sought. This disease has no regard for persons; it affects individuals of all ages and constitutions, and if not speedily removed will prove the cause of much suffering and after regret.

Abscess, or gum-boil, often accompanies scurvy on the gums; but it may arise from cold, or from the fang of a decayed tooth. It is a painful swelling, extending to the face, and affects the whole system. For example, the muscles of the jaw become affected by the inflammation, and so rigid, that it is with difficulty the mouth can be

opened. The author has known several cases of lock-jaw to occur from such apparently trifling causes: hence great attention is needful; for a large abscess is formed, which, if left to itself, generally discharges a quantity of pus externally, the sloughing extending through the substance of the cheek. This produces a most troublesome and indelible sore. To prevent any external sore, when the swelling is perceived an early incision should be made, which, by giving exit to the pus, will afford immediate relief. Such swellings are frequently erroneously poulticed: this produces the external sore which has been just described.

When an abscess forms in the mouth of a child from disease of the temporary teeth, the greatest care should be taken, as exfoliation may be induced of part of either maxilla, and the second teeth in embryo may be con-

siderably injured; therefore any diseased temporary FANGS, when there is a danger of this result, should be immediately extracted. Either in the child or adult, diseased fangs are generally a source of trouble, as well as occasioning an offensive state of the breath, and in all cases give rise to an unhealthy action of the gums; but it should be borne in mind that it by no means follows, because the CROWN of a tooth is decayed, that the fang is diseased. Sound fangs ought not to be extracted except in extreme cases, and then only by the advice of an experienced dentist.

CHAPTER XIV.

TARTAR AND SCALING.

SALIVARY calculus, or, as it is commonly called, tartar, is an offensive deposit secreted from the juices of the mouth, which encrusts the teeth. It is in many instances constitutional; but those suffer most who seldom brush their teeth, as to a great extent its formation can be prevented by the regular use of a brush, with some reliable dentifrice. This deposit gradually increases, and forces the gums from around the necks of the teeth, which exposes the sensitive dentine and considerably injures them. The treatment ensuring a complete cure is easy and simple, and is effected by the painless operation of scaling, or removing the tartar. This re-

quires to be done with care, in order that the enamel may not be injured. To ensure perfect success, properly shaped instruments should be used; the tartar is then very readily removed, without the slightest injury to the dentine.

Bell, in his Lecture on the Teeth (some years ago), speaking of tartar, says:

“When the effect of this accumulation is considered, it would appear impossible that any persuasion would be necessary to induce persons to obviate so great a nuisance, even on their own account. Or if they are too debased to procure their own comfort and cleanliness at the expense of a very little care and trouble, they surely have no right to shock the senses of others who possess more delicacy and propriety of feeling than themselves. Yet so it is; and the sight and the smell are so constantly outraged by the filthiness of people, who seem to obtrude their faces the closer in proportion to the disgust they occasion.”

Hundreds of teeth are yearly lost from the

accumulation of tartar ; whereas, if a dentist were periodically consulted, its consolidation would be prevented.

When tartar has accumulated on the teeth, it is essentially necessary that it should be at once removed ; for then it is soft, and can easily be done by the tooth-brush ; but when suffered to remain, it becomes hard and thick, and can only be removed by suitable instruments. There is among many persons a strong prejudice against scaling the teeth, from a fear that the enamel is injured by the process. This fear is altogether groundless ; for if proper instruments, such as I have referred to, be used, no injury can arise from the operation ; but, on the other hand, great benefit will be derived. When the teeth have been scaled, they ought to be brushed regularly, in order to prevent a further accumulation of tartar, and to preserve the mouth in a healthy condition.

CHAPTER XV.

ARTIFICIAL TEETH.

THE introducer of artificial teeth is as unknown as the author of Baron Munchausen or Junius's Letters; yet the making of artificial teeth is an art of very early origin, Belzoni and others having discovered them in the mouths of Egyptian mummies. Martial and other Roman poets make frequent allusions to their use by the ladies of ancient Rome: they were, however, rudely constructed, and formed but bad substitutes for the natural organs. The method of constructing masticators by carving ivory into the shape of teeth, or by fitting a plate of bone to the mouth, on which were fastened human teeth, was another early method.

These teeth, being deciduous, soon became affected by the constant moisture of the mouth, and readily decomposed. This method cannot be too strongly condemned. It may seem strange, but it is nevertheless most true, that the dissecting-room and battle-field were at one time the fertile sources for the supply of these teeth. The modern teeth are a great improvement on the old school, being composed of the purest adamantine minerals, flour-spar, silex, &c.; and the great varieties of colours and shades which these teeth are noted for, are imparted by metallic gold and platina, and by the oxides of gold, titanium, manganese, cobalt and uranium.* By this *modus operandi* the natural teeth can be matched in colour and shape with such nicety, that detection is ren-

* This process is peculiar and patent to the author's manufacture.

dered simply impossible even by the closest and keenest observer. Badly-fitting teeth are often catalogued amongst the complaints against dentists. It should be strongly impressed on the public mind that no dentist who really is what he assumes to be, ever parts with his patient before everything that it is in his power to do has been done for his or her comfort. Much injury to the cause of mechanical dentistry has undoubtedly been occasioned by the insertion of badly-constructed artificial teeth by some dentists, or rather pseudo-dentists, who have not the slightest knowledge of the mechanical department of their profession. Their system consists in taking an impression of the mouth in wax, which they hand over to an assistant, who having as limited a knowledge of the mechanical as the former has of the surgical department, produces work of imperfect cha-

racter. When the dentist has his laboratory and staff of competent workmen in his own establishment, and performs the principal manipulations with his own hands, he must as a matter of course be more successful in making a perfect fit and giving comfort to the wearer.

There are persons who at the age of fifty or sixty will tell you that they are too old to require artificial teeth, having been without them so long. "It is not worth their while to commence wearing them at that advanced stage of life." Surely it is worth every man's while to live as long as he can; indeed, it is every man's duty so to do. Artificial teeth were invented with the view of restoring a loss, and assisting the weakening and declining powers of nature; for it must be borne in mind that the older we become, the more we require teeth to assist

digestion. It is strongly recommended that those who require artificial teeth should not postpone their visit to the dentist until the natural ones are *all* destroyed. This is often done under the impression that artificials cannot be satisfactorily inserted until the mouth is perfectly devoid of teeth. Besides adding greatly to the difficulties of the dentist, this is a mistaken and frequently a very injurious impression, and cannot be supported either by argument or experience. Not even for a pecuniary reason should such an idea be for one moment entertained; for a base can be attached to a few artificial teeth which may be made available for any additions that might be afterwards required. The loss of even five or six natural teeth does of necessity impose upon the remaining ones additional labour, which must undoubtedly hasten their destruction, and

cause a continual annoyance and uneasiness. It is an incontrovertible fact, that if the loss of one or more teeth were immediately supplied, the others would be preserved for a much longer period.

The plea that artificial teeth are too expensive, cannot be advanced, as the author, to meet the requirements of those whose limited incomes have hitherto prevented them from availing themselves of the benefits derived from artificial teeth, manufactures an incorrodible tooth which can be fixed in the mouth on an improved principle at a trifling cost; and thus the benefits of a third set are not now, as formerly, enjoyed by the wealthy alone.

CHAPTER XVI.

MODE OF FIXING ARTIFICIAL TEETH.

THE various methods by which artificial teeth are fixed and adapted to the mouth are too numerous to detail ; only a short outline, therefore, will be given of the system, invariably adopted with perfect success, and to the entire satisfaction of the patient ; though of course every case has its peculiarities which require to be studied, so that the best means may be taken which experience suggests to ensure comfort and success. By a number of experiments, the exact rugæ or wrinkles of the palate, in artificial dentures, is obtained, which renders adaption to the roof of the mouth complete, and prevents food or air entering between the artificial plate and

palate of the mouth, which is necessary for distinct articulation and perfect mastication.

By means of this invention, teeth are fixed by atmospheric pressure, upon the principle that a boy lifts a stone by means of a leathern sucker. This will give some idea of the power of cohesion produced. All unsightly clasps, wires, springs, &c., are completely dispensed with; and the plates by this process can be made much thinner, stronger, and more durable, than those made on the ordinary principle.

The following extract, which appeared in a weekly scientific and interesting journal, called "Public Opinion," a short time since, so clearly describes the author's invention, that it is here inserted :

"IMPROVEMENT IN ARTIFICIAL TEETH.—The most recent improvement in the manufacture of artificial teeth is that of the adaptation of the principle

of the common sucker to the artificial palate. The patent suction-valve of Dr. G. H. Jones, of Great Russell Street, is an ingenious contrivance of great simplicity, by which the upper case of teeth is kept firmly in the mouth, and can only be removed at the will of the wearer. The action is simple, while the effect is most perfect. The tongue easily, and by a natural movement, effectually exhausts the air from the valve, and the teeth are retained *in situ*, upon the principle by which a boy raises a stone by means of an ordinary sucker. This plan obviates the old and somewhat clumsy arrangement of fitting teeth with springs and wires, which frequently require repair, while the perfect contact of the artificial teeth with the roof of the mouth, which this improvement secures, prevents crumbs and portions of masticated food from hanging about the mouth—always a source of discomfort, and tending to produce a foulness in the breath, not only inconvenient to the wearer, but which is always a sure indication of the presence of ill-fitting artificial teeth."

The most nervous patient need not fear either pain or inconvenience; for by the

above introduction, artificial teeth are fixed securely and painlessly, while power in mastication and complete articulation are ensured.

The author would call especial attention to his soft elastic base, Thionite, by means of which teeth can be adapted to the most tender gums without the extraction of stumps, loose teeth, or any painful operation. The material itself is impervious to moisture, therefore never decays or becomes discoloured, and is used by the author also in supplying the place of the natural gums where absorption has taken place. This base, in combination with gold or other precious metals, possesses every requisite quality for ensuring a soft and pliable base, which fact gives success in cases that have hitherto baffled the skill of celebrated dentists. If the selection of fixing, &c., is left to the

author, patients may depend upon having that which is most suitable for their particular case; for be it remembered every mouth has its peculiarity, which requires to be studied to ensure comfort and success. It is a well-known fact that the greatest variety exists in the conformation of the mouth, and in every one some marked distinction points out the difference.

It is desirable, in a work like the present, that every information should be afforded upon the necessary preparation the mouth requires for the adjustment of artificial teeth. It too often happens that persons have hesitated to consult the dentist, fearing that their remaining teeth and old stumps must be extracted. This is a very general error, and when adopted causes the gums to recede and the alveolar process to be absorbed, irreparable damage being the result. The remaining

teeth or stumps act as a support, prevent the gums receding, and form a good foundation for artificial teeth. The reader is most emphatically assured that any remaining teeth or stumps should only be removed when the fangs are diseased ; to do so under any other circumstances is to inflict unnecessary suffering upon the patient ; therefore the opinion of an experienced dentist, whose judgment can be relied upon, ought to be procured before extraction is submitted to.

It may be asked by many, How can artificial teeth be inserted over uneven stumps, and with decayed or jagged teeth remaining? Take a simile for the answer. If a branch of a tree were decayed, only the withered part would be lopped off, and not the entire tree uprooted : in like manner, by the simple and painless use of a gold file, the decayed and uneven portions of a tooth can be readily

removed, and thus artificial teeth can be closely adapted to the gums, to the complete satisfaction and daily comfort of the wearer. However, should this painless process be objected to from any cause, artificial teeth on the patent suction principle can be inserted by simply taking a cast of the mouth with a plastic compound especially prepared for that purpose, without touching either tooth or stump.

CHAPTER XVII.

GENERAL CONSTRUCTION OF DENTURES— THIONITE, ETC.

To ensure success in the adaption of dentures, or plates for holding artificial teeth, the case ought to be well studied, and the materials most suitable for the mouth selected. Gold, although the most precious of metals, is not, as supposed by many, the best base for teeth in every mouth. There are some cases where the gums and bone (consequent upon the loss of teeth) have entirely receded; in such cases gold would be insufficient, as there requires a material resembling the gum, which for its lightness and durability could be recommended, to restore the sunken gums, and to give to

the face its natural contour which had vanished. This is best effected by the improved base, Thionite, because it is imperishable, resisting the action of oils, moistures, sulphuric, muriatic, and nearly all the known acids, and is therefore not liable to oxydize, corrode, or be in any way affected by the saliva or acids of the stomach. Its inherent toughness, firmness, tenacity and fine texture, make it peculiarly adapted for suction; it is not likely to break, wear away, nor become rough, and is susceptible of an elegant polish. It forms one undivided piece of mechanism, without seams or crevices for the lodgment of secretion, securing purity to the mouth. It is light, and admirably adapted to restore the sunken portions of the face, without materially adding to weight; and, being slightly elastic, yields to the motions of the mouth, imparting comfort

and special facilities for mastication without irritation to the gums. It is especially adapted for irregularities of the mouth, extreme absorption of the alveolar process, loss of palate, and the most difficult and complicated cases.*

To exemplify to my readers more lucidly than could be done by verbal statement, subjoined are a few illustrations, shewing the



FIG. 3.

* The Thionite base is most invaluable for tender gums, and is especially recommended to public speakers, invalids, and other persons who have hitherto failed to find the advantages of artificial teeth.

individual cases where the different materials mentioned are employed.

Fig. 3 represents a complete set of incorrodible mineral teeth, which will never change colour or decay, set in the soft flexible Thionite gums. In this case it will be seen that the gums have been supplied as well as teeth. Gold in this instance would be totally inadequate; it would not restore the lost substance; but both combined forms an exquisite piece of workmanship, with the extreme lightness of the one and strength of the other.

Thionite, although the greatest discovery ever made in dentistry, yet will be found to be less expensive, by comparison, and more durable, than any other.

There are, however, some cases where gold is the only successful agent to employ.

Fig. 4 is a piece constructed for a lady

upon gold plate, to supply the molars and bicuspidati of the lower maxilla, she having



FIG. 4.

been hitherto unable to masticate her food, and suffered much in consequence. It will be seen in this illustration that the gums are not lost, and that the crowns of teeth only are supplied.

Before proceeding further, the materials other than those referred to should be mentioned. Platina, Palladium, Silver and Vulcanite, are other bases extensively used by dentists. The first of these, Platina, is a

metal which is less acted upon by heat or chemicals than any known substance, as nothing but the oxy-hydrogen blow-pipe or aqua regina will in any way affect it. It is a very precious metal, and were it not for its extreme weight (the specific gravity being 21.5, it being heavier than lead—in fact, Platina is the heaviest substance known), would form an excellent base, and even surpass gold. It is, however, sometimes made use of as an alloy with silver, or, as it is called “dental alloy,” and forms a good base, owing to its durability.

Palladium is still better, and is used with great success. This metal alloyed slightly with silver is much improved, and from its extreme lightness and strength constitutes a first-rate base. Silver is much employed, but on account of its extreme susceptibility to oxidize, it soon becomes affected by the acids

of the mouth; therefore it should not be employed except when its use is of short duration; for example, in the construction of temporary sets, or whilst correcting irregularities of dentition.

Vulcanite, or india-rubber submitted to the process of vulcan, i.e. heat, when used, ought to be of the very best quality. It is extremely well adapted for patients who require massive pieces; and in remedying the defects occasioned by fissure of the palate it is generally used in dentistry, but it is not applicable in all cases.



FIG. 5.

Fig. 5 is an engraving of a single tooth mounted on a small gold plate. There being little room, metal is employed.



FIG. 6.

The above plate represents a piece made for a gentleman who had lost the superior central and lateral incisors of the left side. He now can articulate well, and even crack nuts with his artificials. The base employed was Palladium.

The next represents an entire set of teeth with spiral springs. These teeth were constructed for a gentleman whose gums and alveoli had become COMPLETELY absorbed through the very early loss of teeth, thus rendering springs an absolute necessity. Before having the set, he was in a declining state of health; but by their aid, the lost

power of mastication was fully restored, and he is now at the age of eighty-five, and enjoys excellent health.



FIG. 7.

The next case, Fig. 8, illustrates an upper denture, supplying artificial teeth in various positions of the mouth, on a plate of Thionite, thus shewing the practicability of inserting teeth betwixt remaining natural ones.



FIG. 8.

The author will conclude his work with a chapter on the history and treatment of Cleft Palates, a branch of dental science unimportant to the million, but of great consequence to the few.

Should there be a lack of information in

the foregoing chapters, a desire not to weary must be an apology for any shortcomings. The reader is respectfully informed, if further advice be needed, that the author may be consulted at his only address, from ten till five daily.

57, GREAT RUSSELL STREET,
OPPOSITE BRITISH MUSEUM,
LONDON.

CHAPTER XVIII.


CLEFT PALATE.

CLEFT palate is a congenital affection, and consists of a fissure or cleft in the hard or soft palate ; whilst in aggravated cases of this malformation, both the hard and soft palate may be involved, the cleft even extending through the lip, forming what is termed a "hare-lip."

Those who are acquainted with individuals suffering from defect in the palate, see but too plainly the great distress and inconvenience produced by such malformations ; therefore it requires no persuasion to convince them that the means by which such misfortunes are alleviated are not of slight importance.

Cleft palate interferes both with articulation and deglutition, giving the voice an extreme nasal twang; and during swallowing, especially fluids, there is a tendency to regurgitation through the nose.

A variety of operations are performed for its cure. These operations are generally successful when the soft palate only is involved; but where the fissure has extended through the hard palate as well, they are seldom of much benefit. Assuming that surgical treatment has proved unsuccessful, or the patient not wishing to undergo an operation, it will be satisfactory to explain the mechanical treatment of cleft palate. At an early date, artificial palates, or, more properly speaking, obturateurs (a term derived from the Latin word *obturo*, to stop up), were used. The Greeks are mentioned by Gillemeau to have had recourse to them.



Early German writers also speak of their use: Camper, Eckart, Von Leveling and others. To Messieurs Pierre Fauchard, Dubois Foucou and De le Barre, French dental writers, we are also indebted for some valuable suggestions in the treatment of fissures of the palate.

Formerly, obturateurs were simply constructed of wax or sponge. Bone was then used. The latter, although employed with more success, was readily acted upon by the acids of the mouth, soon became discoloured and very offensive. Mons. De le Barre was the first to introduce india-rubber; but being used in its raw state and not possessing sufficient elasticity, it proved an imperfect obturateur.

The system found to be successful by the author, and proved in his lengthened experience by a number of experiments in gra-

tuitous and hospital practice, consists in first taking a very accurate impression of the entire palate, by means of a prepared compound contained in an "impression tray" previously adjusted to the mouth. This composition, unlike wax, does not remain soft, but in a few seconds "sets" quite hard; so that in the effort to remove it from the mouth, no danger of the impression "dragging" need be apprehended, i.e. getting out of shape. Into this cast is poured plaster of paris, which in a short time becomes quite hard at this stage. The model should be immersed in very warm water, and the composition gently peeled off. There then appears the fac-simile of the palate.

Having obtained as perfect a cast as possible, a gold plate should next be adapted to the roof of the mouth, reaching as far back as can be worn by the patient. This must

be done with the greatest accuracy, to prevent fluids or air passing under the edges of the plate into the fissure. This plate, mounted with thionite or vulcanized india-rubber, fills up the deficiency. In more defective cases, the nasal palatine floor should be constructed as near as possible to represent nature: this can be done by fitting to that part of the plate which answers to the nasal fossa a flooring of thionite accurately fitted to the cavity, to which it ought to be very nicely adjusted. When the soft palate is extensively absent, further appliances are needful, as in cases of fissure of the *Velum Pendulum Palati*, *Uvula*, &c. There are some instances of the cleft not extending to the superior maxillary bone, but being confined to the soft palate. To remedy this, a plate either of gold or thionite ought to be fitted across the palate over the

os palati. This, being supplied with posterior wings of india-rubber united to the anterior portion of the obturateur, adjusted by finely-made gold hinges, and retained in situ by a highly elastic spring of the same material, yields to the palate the natural movement. The anatomy of the parts being carefully represented in the manufacture of the obturateur, nothing is left but the adjustment of the piece, which to any remaining teeth ought to be securely fastened. The patient, although inconvenienced at first by the introduction of such an apparatus, readily overcomes by use and perseverance the difficulty, and in a short time a material improvement is perceived in articulation, and he also becomes soon agreeably surprised at the almost immediate ease and comfort experienced in mastication and in swallowing.

In some instances, where the cleft extends through the alveolar process, the jaw will sometimes be found deficient to the width of the four incisor teeth, causing considerable deformity. This gap should be supplied by thionite, into which artificial teeth may be mounted so as to restore the contour of the face. When the fissure extends through both the hard and soft palate, it will often contribute to the success of mechanical treatment if the gap in the soft palate be closed by a surgical operation, after which the metal or thionite obturateur may be fitted with greater benefit.

The following engravings illustrate a few cases of cleft in the hard palate, with each of which a short account is given of treatment, &c.

Fig. 9 represents the mouth of a lady, aged twenty-five years, who was afflicted

with a cleft in her hard palate. It was not an extreme case, as the fissure was not



FIG. 9.

more than an inch in length. A gold obturator was constructed, Fig. 10, which answered admirably in every respect, her speech being rendered perfect.



FIG. 10.

The next case, though not one strictly of cleft palate, was almost as bad in its effects on the patient. Mr. G., aged forty, had suffered from necrosis, and in consequence had lost a small piece of bone from the palate. Fig. 11 shews the condition of the mouth. He had been using a badly-fitting obturator, which, in addition to its not answering the purpose intended, was a constant source

of annoyance. The great success in this case was due in a great measure to the very accurate model obtained, as well as to the suction principle employed.



FIG. 11.

The peculiar mechanical construction of the obturateur needed in this gentleman's case is shewn in Fig. 12,—an engraving of

the piece of artificial work upon which a lost natural tooth was supplied.



FIG. 12.

FINIS.

